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ABSTRACT

The College Science and Technology Entry Program (CSTEP) at Queensborough Community College (QCC) in Bayside, New York, is designed to recruit and assist minority and disadvantaged students and to encourage their enrollment in science, technology, and allied health programs. The program offers academic support services and career information to improve academic achievement, help students clarify their goals, and reduce the likelihood of attrition. Results of a longitudinal evaluation of the program, conducted 4 years after the program's inception in fall 1987, included the following: (1) as of spring 1991, 299 students had participated in the CSTEP program, of whom nearly 95% were from ethnic minorities; (2) in fall 1990, women comprised the majority of program participants for the first time; (3) one-third of all CSTEP students were enrolled in the nursing program at QCC; (4) 94.4% of program participants required remediation in at least one of the basic academic skills areas; (5) 48% of the spring 1988 cohort were retained as of spring 1991; (6) since 1987, participants' overall grade point averages (GPA's) and GPA's in their majors have improved steadily; (7) program participants at the lower end of the GPA continuum have experienced the greatest gains in overall GPA; (8) since spring 1989, the proportion of CSTEP students in good academic standing has exceeded 90%; and (9) as of spring 1991, a total of 63 degrees were earned by CSTEP participants. Flow charts, data tables, and a description of QCC and its student body are included. (PAA)

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Evaluation of College Science and Technology Entry Program (CSTEP)

Fall 1987 Through Spring 1991

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Spring, 1992

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EXECUTIVE SUMMARY

This evaluation report is offered as the follow-up and continuation of the previously published Evaluation of College Science and Technology Entry Program, covering the period Fall 1987 through Spring 1989. The data reported herein are cumulative and the research documents CSTEP program developments for the entire period from Fall 1987 through Spring 1991. As our database has undergone substantial revision since the previous CSTEP evaluation report, some differences in the data reported for the preceding evaluation period may be discernable. None of these changes altered the conclusions drawn from the data as reported earlier. As before, this evaluation report represents our ongoing effort to maintain a computerized information retrieval system that permits longitudinal analysis of data collected about our CSTEP program participants here at Queensborough Community College. Based on that analysis, the following results were obtained:

- As of Spring 1991, a total of 299 students have participated in the CSTEP program.

- The CSTEP program has been very successful in its efforts to recruit minority students. Nearly ninety-five percent of all students participating in the program identified themselves as members of the ethnic minorities most heavily represented in Queens county.

- Substantial gains in participation levels of females in the CSTEP program were made. As of the Fall 1990 semester, for the first time, women comprised the majority of CSTEP program participants. Overall, women now comprise 44% of all students ever served by the CSTEP program.

- The CSTEP program appeals to all segments of the student population. The vast majority of new students recruited to the program are students just beginning their college careers, who require the guidance and academic support services offered. There is also a substantial number of students close to finishing who are drawn to the program by its promise to familiarize them with career opportunities as well as the assistance promised in the areas of professional development and resume preparation.

- The Nursing curriculum accounts for one third of all students who have participated in the CSTEP program.

- Students participating in the program continue to be poorly prepared for college level work. Their overall

high school admit average was 73.27. And nearly all, 94.4% required remedial course work in at least one of the basic academic skill areas.

- Although retention rates for the Fall '87 cohort were poor, they have improved steadily since then with 48% of the students in the Spring '88 cohort being retained as of Spring 1991. Especially encouraging are the generally high retention figures reported for more recent cohorts after the first year of attendance.

- Those students who are retained in the CSTEP program are also demonstrating steady progress toward their degrees.

- Outcomes data for CSTEP students are generally favorable. Overall grade point average and GPA in the major have both improved steadily for CSTEP students since the program's inception. By the end of the spring 1989 semester, overall GPI had improved to 2.63, which represents an improvement of 0.65 grade points and a net gain of 33% in overall GPI. There has been a small erosion in grade point average since then and future research will monitor this recent downward trend closely.

- Especially gratifying is that the program reaped the most rewards for those it was specifically designed to help. Based on an analysis of the mean and median grade point averages, it is clear that students at the lower end of the GPA continuum realized the greatest gains in their grade point averages.

- By and large, CSTEP students are performing at acceptable levels academically. The proportion of students in good academic standing, or on the Dean's list has exceeded 90% since the Spring 1989 semester.

- As of Spring 1991, a total of sixty-three degrees were earned by CSTEP students which represents an overall graduation rate of 21% for the 299 students that have participated in the CSTEP program since its inception. The graduation rate is much higher (33.3%) when calculated for students from cohorts in attendance for at least four semesters (2 years). Considering the documented gains made recently in retention rates, it is reasonable to expect that completion rates for CSTEP participants will at least match the 33% rate and, in all probability surpass it in the near future.

INTRODUCTION

The College Science and Technology Entry Program (CSTEP) at Queensborough Community College began in the Fall semester of 1987. The overall purpose of the program is to motivate students to pursue careers in science and technology and to provide them with academic support services, as well as career information, which will help them improve their academic achievement, and clarify their goals and thus reduce the high level of attrition of such students enrolled at the college. The program is specifically designed to recruit and benefit minority and disadvantaged students enrolled in the science, technology and allied health programs.

Key Goals:

The overall goals of the program are:

I. To provide opportunities for disadvantaged and minority students to learn about careers in the technologies and to foster their enrollment in technological programs at Queensborough Community College.

II. To provide an opportunity for minority and disadvantaged students enrolled in the technologies at The College to improve their academic performance, thus reducing the high level of attrition for these students.

Indicators of Success:

Success in these stated goals will be evaluated using the following data:

a. Demographic and institutional characteristics of recruited students;
b. Preparedness of recruited students as measured by remedial placements and high school average;
c. Course and credit completion rates;
d. Retention rates;
e. Academic performance as measured by academic standing and grade point average;
f. Numbers of degrees granted.

METHODOLOGY

As well as the specific program goals for students stated above, there were a number of long range goals dealing with the administration of the program and the manner in which we monitor the progress of students participating in the CSTEP program. These are:

1. To develop a computerized information retrieval system utilizing the data collected to improve student retention, pinpoint problem areas, identify potential solutions and monitor academic progress;

2. To monitor student progress longitudinally over a period of five years in order to ascertain the effectiveness of the provided support services.

The CSTEP program achieved the four year milestone with the completion of the Spring 1991 semester. This evaluation therefore represents the culmination of our efforts to date in these two areas.

Subjects

At this time, a total of 299 students were recruited to participate in the CSTEP program here at QCC. They were recruited in seven cohorts which correspond to seven of the eight program semesters the CSTEP program has been operating here at Queensborough Community College. Due to funding constraints, no new students were recruited to participate in the program for the Spring 1990 semester.

Cohort	# of Students
Fall '87	38
Spring '88	41
Fall '88	41
Spring '89	42
Fall '89	37
Spring '90	--
Fall '90	66
Spring '91	34
	299

For purposes of analysis, the data collected are

disaggragated in two ways. That is, on a cohort by cohort basis and by program semester. The former enables us to track the success of the individual cohorts recruited separately. The latter permits us to track the overall evolution of the CSTEP program on a semester by semester basis. Students from several cohorts are represented in the data for a single program semester.

Basic descriptive statistical procedures including appropriate tabular presentations, measures of central tendency, change measures and gain scores are utilized to evaluate program effectiveness

RESULTS:

Recruitment:

Tables 1-A through 3-B summarize our efforts in the area of recruiting students to participate in the CSTEP program. In keeping with the stated objectives of the program, we endeavored to attract minority students into the technology, science and allied health programs here at Queensborough Community College. Recruitment data are reported on a cohort by cohort basis as well as a programmatic basis.

Demographic Characteristics of Students

Table 1-A, "Demographic Characteristics of CSTEP Students By Cohort," and Table 1-B, "Demographic Characteristics of CSTEP Students By Program Semester," clearly indicate success in the area of minority recruitment. Based on the cohort data, a total of 299 students were recruited to CSTEP since the Fall of 1987. Of these, the largest majority (62.4%) identified themselves as Blacks and close to ninety-five percent self-identified as either Black, Hispanic, Puerto Rican or Asian, which are the ethnic minorities most heavily represented in Queens County.

An examination of the programmatic data also indicates that these same groups were retained in the program in numbers proportionate to their initial recruitment. Of the 299 CSTEP students enrolled as of Spring, 1992, more than half were Black students (63.2%) and nearly one third (30.9%) of those remaining were either Asian (6.1%), Puerto Rican (4.7%) or other Hispanic (20.1%).

The CSTEP program staff did experience considerable difficulty recruiting women to participate in the program when it first began. The challenge was consistent with national statistics which indicate that women are generally under-represented in the technology and science fields. As early as the Spring of 1989, the proportion of women in the CSTEP program grew to one-third of the enrollment. This was, due, in part, to the addition of a large number of students who were recruited from the Nursing curriculum.

The scarcity of women in the science and technology curricula remained an area of concern for the CSTEP program and we made a concerted effort to recruit females to future cohorts. We are pleased to report that, starting with the Fall 1990 semester, women constitute a majority of CSTEP participants (58.5%). Additionally, participation levels for females increased in the subsequent Spring semester. As of Spring 1991, women comprise 44% of all students participating in the CSTEP program since its inception in 1987.

- TABLE 1-A -

Demographic Characteristics Of CSTEP Students By Cohort

--- Variables Included = Sex, Marital Status and Ethnicity ---

	SEMESTER VALUE							Cohorts Total
	F 87	S 88	F 88	S 89	F 89	F 90	S 91	
SEX								
FEMALE								
	6	12	11	26	21	51	25	152
	15.8%	29.3%	26.2%	60.5%	56.8%	79.7%	92.6%	52.1%
MALE								
	32	29	31	17	16	13	2	140
	84.2%	70.7%	73.8%	39.5%	43.2%	20.3%	7.4%	47.9%
Valid Cases								
	38	41	42	43	37	64	27	292
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
MARITAL STATUS								
MARRIED								
	3	3	3	13	3	13	7	45
	7.9%	7.3%	7.1%	30.2%	8.1%	20.3%	25.0%	15.4%
SINGLE								
	35	38	39	30	34	51	21	248
	92.1%	92.7%	92.9%	69.8%	91.9%	79.7%	75.0%	84.6%
Valid Cases								
	38	41	42	43	37	64	28	293
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
ETHNICITY								
WHITE								
	1	1		5	2	2	3	14
	3.0%	2.7%		12.2%	5.6%	3.3%	11.1%	5.1%
BLACK								
	14	12	25	26	28	49	17	171
	42.4%	32.4%	64.1%	63.4%	77.8%	80.3%	63.0%	62.4%
PUERTO RICAN								
	7	3	1		1		1	13
	21.2%	8.1%	2.6%		2.8%		3.7%	4.7%
OTHER HISPANIC								
	10	14	8	5	4	10	5	56
	30.3%	37.8%	20.5%	12.2%	11.1%	16.4%	18.5%	20.4%
ASIAN PAC. ISLD								
	1	7	4	4				16
	3.0%	18.9%	10.3%	9.8%				5.8%
NATIVE AMERICAN								
			1	1				2
			2.6%	2.4%				.7%
OTHER								
					1		1	2
					2.8%		3.7%	.7%
Valid Cases								
	33	37	39	41	36	61	27	274
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Due to funding cuts, no Spring 1990 cohort was recuited.
Based on 299 CSTEP Program participants.
Prepared by EVC, 06/92.

- TABLE 1-B -

Demographic Characteristics Of CSTEP Students By Program Semester

--- Variables Included = Sex, Marital Status and Ethnicity ---

	SEMESTER VALUE								Program Total
	F 87	S 88	F 88	S 89	F 89	S 90	F 90	S 91	
SEX									
FEMALE									
	6	17	17	39	53	52	86	91	361
	15.8%	22.7%	23.6%	37.5%	46.1%	46.4%	58.5%	63.2%	44.7%
MALE									
	32	58	55	65	62	60	61	53	446
	84.2%	77.3%	76.4%	62.5%	53.9%	53.6%	41.5%	36.8%	55.3%
Valid Cases									
	38	75	72	104	115	112	147	144	807
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
MARITAL STATUS									
MARRIED									
	3	8	8	21	15	16	26	28	125
	7.9%	10.7%	11.1%	20.2%	13.0%	14.3%	17.7%	19.3%	15.5%
SINGLE									
	35	67	64	83	100	96	121	117	683
	92.1%	89.3%	88.9%	79.8%	87.0%	85.7%	82.3%	80.7%	84.5%
Valid Cases									
	38	75	72	104	115	112	147	145	808
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
ETHNICITY									
WHITE									
	1	2		5	7	7	7	7	36
	3.0%	3.0%		5.1%	6.3%	6.5%	4.9%	5.0%	4.7%
BLACK									
	14	26	38	59	74	72	103	99	485
	42.4%	39.4%	55.9%	59.6%	66.7%	66.7%	72.5%	70.2%	63.2%
PUERTO RICAN									
	7	8	4	4	3	3	3	4	36
	21.2%	12.1%	5.9%	4.0%	2.7%	2.8%	2.1%	2.8%	4.7%
OTHER HISPANIC									
	10	22	18	21	18	17	23	25	154
	30.3%	33.3%	26.5%	21.2%	16.2%	15.7%	16.2%	17.7%	20.1%
ASIAN PAC. ISLD									
	1	8	7	9	7	7	5	3	47
	3.0%	12.1%	10.3%	9.1%	6.3%	6.5%	3.5%	2.1%	6.1%
NATIVE AMERICAN									
			1	1	1	1		1	5
			1.5%	1.0%	.9%	.9%		.7%	.7%
OTHER									
					1	1	1	2	5
					.9%	.9%	.7%	1.4%	.7%
Valid Cases									
	33	66	68	99	111	108	142	141	768
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Based on 818 CSTEP Program records.
Prepared by EVC, 06/92.

- TABLE 2-A -

Institutional Characteristics Of CSTEP Students By Cohort

--- Variables Included = Division, Rank and Type of Admission ---

	SEMESTER VALUE							Cohorts Total
	F 87	S 88	F 88	S 89	F 89	F 90	S 91	
DIVISION								
DAY								
	33	37	38	43	34	60	28	273
	86.8%	90.2%	90.5%	100.0%	91.9%	95.2%	100.0%	93.5%
EVENING								
	5	4	4		3	3		19
	13.2%	9.8%	9.5%		8.1%	4.8%		6.5%
Valid Cases								
	38	41	42	43	37	63	28	292
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
CLASS RANK								
LOW FROSH								
	30	23	18	23	24	23	11	152
	78.9%	56.1%	42.9%	53.5%	64.9%	35.9%	39.3%	51.9%
UP FROSH								
	6	5	8	9	4	7	4	43
	15.8%	12.2%	19.0%	20.9%	10.8%	10.9%	14.3%	14.7%
LOW SOPH								
	2	8	5	6	3	12	6	42
	5.3%	19.5%	11.9%	14.0%	8.1%	18.8%	21.4%	14.3%
UP SOPH								
		5	11	5	6	22	7	56
		12.2%	26.2%	11.6%	16.2%	34.4%	25.0%	19.1%
Valid Cases								
	38	41	42	43	37	64	28	293
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
TYPE ADMIT								
NEW FROSH (USA)								
	28	30	30	21	27	40	17	193
	73.7%	75.0%	78.9%	51.2%	77.1%	67.8%	63.0%	69.4%
NEW FROSH (FOR.)								
	6	4	6	5	2	6	3	32
	15.8%	10.0%	15.8%	12.2%	5.7%	10.2%	11.1%	11.5%
TRANSFER & OTHER								
	4	6	2	15	6	13	7	53
	10.5%	15.0%	5.3%	36.6%	17.1%	22.0%	25.9%	19.1%
Valid Cases								
	38	40	38	41	35	59	27	278
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Due to funding cuts, no Spring 1990 cohort was recuited.
Based on 299 CSTEP Program participants.
Prepared by EVC, 06/92.

- TABLE 2-8 -

Institutional Characteristics Of CSTEP Students By Program Semester

--- Variables Included = Division, Rank and Type of Admission ---

	SEMESTER VALUE								Program Total
	F 87	S 88	F 88	S 89	F 89	S 90	F 90	S 91	
DIVISION									
DAY									
	33	67	61	97	101	104	123	129	715
	86.8%	89.3%	84.7%	93.3%	87.8%	92.9%	84.2%	89.6%	88.7%
EVENING									
	5	8	11	7	14	8	23	15	91
	13.2%	10.7%	15.3%	6.7%	12.2%	7.1%	15.8%	10.4%	11.3%
Valid Cases									
	38	75	72	104	115	112	146	144	806
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
CLASS RANK									
LOW FROSH									
	30	50	20	39	28	27	30	32	256
	78.9%	66.7%	27.8%	37.9%	24.3%	24.1%	20.4%	22.1%	31.7%
UP FROSH									
	6	11	15	21	20	21	21	22	137
	15.8%	14.7%	20.8%	20.4%	17.4%	18.8%	14.3%	15.2%	17.0%
LOW SOPH									
	2	9	15	19	23	23	27	28	146
	5.3%	12.0%	20.8%	18.4%	20.0%	20.5%	18.4%	19.3%	18.1%
UP SOPH									
		5	22	24	44	41	69	63	268
		6.7%	30.6%	23.3%	38.3%	36.6%	46.9%	43.4%	33.2%
Valid Cases									
	38	75	72	103	115	112	147	145	807
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
TYPE ADMIT									
NEW FROSH (USA)									
	28	55	54	67	75	74	94	95	542
	73.7%	74.3%	79.4%	68.4%	68.8%	69.8%	68.1%	70.4%	70.8%
NEW FROSH (FOR.)									
	6	10	10	13	12	11	15	14	91
	15.8%	13.5%	14.7%	13.3%	11.0%	10.4%	10.9%	10.4%	11.9%
TRANSFER & OTHER									
	4	9	4	18	22	21	29	26	133
	10.5%	12.2%	5.9%	18.4%	20.2%	19.8%	21.0%	19.3%	17.4%
Valid Cases									
	38	74	68	98	109	106	138	135	766
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Based on 818 CSTEP Program records.
Prepared by EVC, 06/92.

Institutional Characteristics of Students

Table 2-A, "Institutional Characteristics of CSTEP Students By Cohort," and Table 2-B, "Institutional Characteristics of CSTEP Students by Program Semester," show that the vast majority (69.4%) of students who have participated in the CSTEP program were first-time Freshmen that were born in the United States. This group represents nearly seventy percent of all students recruited to the CSTEP program and, as of Spring 1991, they constitute slightly more than seventy percent of all CSTEP program participants. Foreign born first-time freshman comprise nearly 12% of all students recruited to the CSTEP program. Transfer students and those with other types of admission are the second largest presence in the program at approximately 19%.

Two conclusions can be drawn from the distribution of class rank over the eight semesters since the CSTEP program's inception. First of all, an examination of the programmatic data for each semester since the Fall of 1987, clearly indicates that students are persisting. At the outset, nearly eight in ten students were Lower Freshmen while virtually none were Upper Sophomores. However, by tracking the data for several semesters, the proportion of students starting out is gradually shrinking relative to those in the Upper Sophomore category. In fact, in recent semester (F'90 and S'91), Upper Sophomores outnumber Lower Freshmen by a ratio of two to one.

Secondly, the student rank data for the cohorts suggest that the CSTEP program appeals to students at either end of their academic careers here at the college. On the one hand, students just starting out, who are in need of the academic support services the program offers are heavily represented. On the other hand, students who are well on their way to the degree were also recruited. It is likely that this latter group of students were drawn to the program by its promise to familiarize them with career opportunities in the sciences and technologies as well as the assistance promised in the areas of professional development and resume preparation.

Finally, in terms of the overall goal of recruiting students to the sciences, technologies and allied health fields, Table 3-A, "Curriculum Major of Students In The CSTEP Program By Cohort," and Table 3-B, "Curriculum Major of Students In The CSTEP Program By Program Semester," indicate our performance in this area. CSTEP recruits were attracted to the entire spectrum of science, technology and allied health programs the college offered. By and large, CSTEP students exhibited similar curriculum preferences to those of their counterparts in the general population of students at the college. When the program first began, the Computer Technology and Electric Technology programs consistently attracted the most students with more than four in ten

students opting for those curricula. Recently, thanks to our recruitment efforts in the Nursing area, that curriculum has grown to a point where it now accounts for one-third of all students who have participated in the CSTEP program.

- TABLE 3-A -

Curriculum Major Of Students In the CSTEP Program By Cohort

	SEMESTER VALUE							Cohorts Total
	F 87	S 88	F 88	S 89	F 89	F 90	S 91	
CURRENT CURRICULUM								
						2	2	4
						3.0%	6.7%	1.3%
Photog. Cert.								
		1						1
		2.4%						.3%
Business Admin.								
			1			1		2
			2.4%			1.5%		.7%
Comp. Eng. Tech.								
	15	7	9	2	1	5	3	42
	39.5%	17.1%	21.4%	4.5%	2.7%	7.6%	10.0%	14.1%
Design Drafting								
	3	4	3	1	2			13
	7.9%	9.8%	7.1%	2.3%	5.4%			4.4%
Comp. Prog. & I/S								
					1			1
					2.7%			.3%
Elec. Tech								
	7	12	9	4	5	5	1	43
	18.4%	29.3%	21.4%	9.1%	13.5%	7.6%	3.3%	14.4%
Fine & Perf. Arts								
			1					1
			2.4%					.3%
Lib. Arts. & Sci.								
			1	1	3	2	3	10
			2.4%	2.3%	8.1%	3.0%	10.0%	3.4%
Lib. Arts. & Sci.								
	1	4	4	3	5	2		19
	2.6%	9.8%	9.5%	6.8%	13.5%	3.0%		6.4%
Music Elec. Tech.								
	2		2	1				5
	5.3%		4.8%	2.3%				1.7%
Medical Lab. Tech.								
	3	3	5	2	1	4	1	19
	7.9%	7.3%	11.9%	4.5%	2.7%	6.1%	3.3%	6.4%
Mechanical Tech.								
	4	6	2	2	2	1		17
	10.5%	14.6%	4.8%	4.5%	5.4%	1.5%		5.7%
NM8								
		1			1	1	1	4
		2.4%			2.7%	1.5%	3.3%	1.3%
Pre-Nursing/Nursing Science								
	1		2	5	9	8	8	33

Due to funding cuts, no Spring 1990 cohort was recuited.
Based on 299 CSTEP Program participants.
Prepared by EVC, 06/92.

(continued)

- TABLE 3-A -

Curriculum Major Of Students In the CSTEP Program By Cohort

	SEMESTER VALUE							Cohorts Total
	F 87	S 88	F 88	S 89	F 89	F 90	S 91	
Nursing Sci.	2.6%		4.8%	11.4%	24.3%	12.1%	26.7%	11.1%
			1	19	5	35	11	71
			2.4%	43.2%	13.5%	53.0%	36.7%	23.8%
Pre-Engineering	1	1	1	3	1			7
	2.6%	2.4%	2.4%	6.8%	2.7%			2.3%
Laser & Fiber Optics	1	2	1	1	1			6
	2.6%	4.9%	2.4%	2.3%	2.7%			2.0%
Valid Cases	38	41	42	44	37	66	30	298
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Due to funding cuts, no Spring 1990 cohort was recuited.
Based on 299 CSTEP Program participants.
Prepared by EVC, 06/92.

- TABLE 3-B -

Curriculum Major Of CSTEP Students By PROGRAM SEMESTER

	SEMESTER VALUE								Program Total
	F 87	S 88	F 88	S 89	F 89	S 90	F 90	S 91	
CURRENT CURRICULUM									
						3	2	4	9
						2.6%	1.3%	2.7%	1.1%
Photog. Cert.									
		1							1
		1.3%							.1%
Business Mgmt.									
					1	2	1	1	5
					.9%	1.7%	.7%	.7%	.6%
Business Admin.									
			1	1			1	2	5
			1.4%	1.0%			.7%	1.3%	.6%
Comp. Eng. Tech.									
	15	21	17	16	15	15	15	17	131
	39.5%	28.0%	23.6%	15.2%	13.0%	13.0%	10.1%	11.4%	16.0%
Design Drafting									
	3	6	6	7	8	8	6	6	50
	7.9%	8.0%	8.3%	6.7%	7.0%	7.0%	4.0%	4.0%	6.1%
Comp. Prog. & I/S									
					1	2	2	2	7
					.9%	1.7%	1.3%	1.3%	.9%
Elec. Tech									
	7	19	16	16	19	18	16	11	122
	18.4%	25.3%	22.2%	15.2%	16.5%	15.7%	10.7%	7.4%	14.9%
Fine & Perf. Arts									
			1		1	1	1	1	5
			1.4%		.9%	.9%	.7%	.7%	.6%
Lib. Arts. & Sci.									
			1	1	3	3	4	6	18
			1.4%	1.0%	2.6%	2.6%	2.7%	4.0%	2.2%
Lib. Arts. & Sci.									
	1	4	6	10	11	10	8	6	56
	2.6%	5.3%	8.3%	9.5%	9.6%	8.7%	5.4%	4.0%	6.8%
Music Elec. Tech.									
	2	1	2	3	3	3			14
	5.3%	1.3%	2.8%	2.9%	2.6%	2.6%			1.7%
Medical Lab. Tech.									
	3	6	8	9	9	9	9	8	61
	7.9%	8.0%	11.1%	8.6%	7.8%	7.8%	6.0%	5.4%	7.5%
Med. Office Asst.									
							1	1	2
							.7%	.7%	.2%
Mechanical Tech.									
	4	9	5	6	4	4	4	3	39
	10.5%	12.0%	6.9%	5.7%	3.5%	3.5%	2.7%	2.0%	4.8%

Based on 818 CSTEP Program Records.
Prepared by EVC, 06/92.

(continued)

- TABLE 3-B -

Curriculum Major Of CSTEP Students By PROGRAM SEMESTER

	SEMESTER VALUE								Program Total
	F 87	S 88	F 88	S 89	F 89	S 90	F 90	S 91	
NMB		1		1	1		11	10	24
		1.3%		1.0%	.9%		7.4%	6.7%	2.9%
Pre-Nursing/Nursing Science	1	2	3	8	13	14	10	16	67
	2.6%	2.7%	4.2%	7.6%	11.3%	12.2%	6.7%	10.7%	8.2%
Nursing Sci.			1	19	21	19	53	50	163
			1.4%	18.1%	18.3%	16.5%	35.6%	33.6%	19.9%
Pre-Engineering	1	2	2	4	3	3	5	4	24
	2.6%	2.7%	2.8%	3.8%	2.6%	2.6%	3.4%	2.7%	2.9%
Laser & Fiber Optics	1	3	3	4	2	1		1	15
	2.6%	4.0%	4.2%	3.8%	1.7%	.9%		.7%	1.8%
Valid Cases	38	75	72	105	115	115	149	149	818
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Based on 818 CSTEP Program Records.
Prepared by EVC, 06/92.

PREPAREDNESS

Two indicators were utilized to describe the level of academic preparation students had achieved prior to participating in the CSTEP program. The first indicator was students' academic performance in High School, as measured by the grade point average obtained prior to entering college. These data are found in Table 4-A, "High School Admit Average of CSTEP Program Participants," and Table 4-B, "High School Admit Average of CSTEP Program Participants by Program Semester. The other was performance on the battery of placement tests students take upon entering Queensborough Community College as presented in Table 4-C, "Remedial Placements of Students Entering the CSTEP Program."

High School Admit Average of CSTEP Students

High school average is generally regarded to be the single best predictor of students' subsequent success in college. Using this indicator to describe the preparedness of entering CSTEP students, a single word comes to mind -- average! Rarely do longitudinal data achieve such consistency over time as do the high school admit averages of CSTEP cohorts since the Fall 1987 semester. With the exception of the Spring 1989 cohort, the individual cohort averages fluctuate less than eight tenths of a single grade point relative to the grand high school admit average of 73.27 representing all CSTEP program participants.

The median high school admit average, which tends to run between two and three points lower than the mean average, does indicate a negative skew to the high school performance data. An examination of the distribution of high school averages does confirm that the majority of CSTEP students performed at or below average in high school with more than eighty percent of the students scoring below a "B" (80 or higher) average.

Remedial Placements of CSTEP Program Participants

The performance of CSTEP students on our placement tests also suggest a less than sufficient preparation for college level work. Of those students tested, nearly all (94.4%) required remedial course work in at least one of the basic academic skill areas of reading, writing or mathematics. More than half of the students (53.7%) required repetition in all three skill areas. And nearly nine out of ten students required remedial course work in two out of three of the basic skill areas.

These remediation data combined with the high school performance data only serve to underscore the need for a program such as CSTEP here at the college. The support systems and supplemental instruction provided by the program could only help students to overcome the rigors of study in the sciences and technologies. Additionally, these data should guide our judgement when defining the parameters for success when evaluating the program. It would be a mistake to expect extraordinary progress from students possessing this level of preparation at the outset.

- TABLE 4-A -

High School Admit Average Of Students In the CSTEP Program By Cohort

	SEMESTER VALUE							Cohorts Total
	F 87	S 88	F 88	S 89	F 89	F 90	S 91	
High School Admit Average								
LT 70	10	8	7	4	8	10	2	49
	27.0%	21.1%	17.5%	11.1%	22.9%	16.4%	7.7%	17.9%
70 - 79	22	25	25	24	25	43	19	183
	59.5%	65.8%	62.5%	66.7%	71.4%	70.5%	73.1%	67.0%
80-89	4	4	7	6		7	5	33
	10.8%	10.5%	17.5%	16.7%		11.5%	19.2%	12.1%
90 & up	1	1	1	2	2	1		8
	2.7%	2.6%	2.5%	5.6%	5.7%	1.6%		2.9%
Valid Cases	37	38	40	36	35	61	26	273
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

------ SUMMARY STATISTICS ------

	SEMESTER VALUE						
	F 87	S 88	F 88	S 89	F 89	F 90	S 91
High School Admit Average							
Mean	73.30	73.08	73.42	74.91	72.79	72.59	73.56
Median	70.00	70.00	70.00	73.10	72.50	70.00	72.00
St. Dev.	6.88	5.74	6.30	6.64	5.53	5.49	4.95

Due to funding cuts, no Spring 1990 cohort was recuited.
Based on 299 CSTEP Program participants --- Prepared by EVC, 06/92.
Missing data include students entering with the GED.

- TABLE 4-B -

High School Admit Average Of CSTEP Students By Program Semester

	SEMESTER VALUE								Program Total
	F 87	S 88	F 88	S 89	F 89	S 90	F 90	S 91	
High School Admit Average									
LT 70									
	10	17	14	18	22	22	26	21	150
	27.0%	23.9%	20.3%	18.9%	20.8%	21.2%	18.6%	15.2%	19.7%
70 - 79									
	22	45	42	58	68	66	94	96	491
	59.5%	63.4%	60.9%	61.1%	64.2%	63.5%	67.1%	69.6%	64.6%
80-89									
	4	7	11	15	12	12	17	19	97
	10.8%	9.9%	15.9%	15.8%	11.3%	11.5%	12.1%	13.8%	12.8%
90 & up									
	1	2	2	4	4	4	3	2	22
	2.7%	2.8%	2.9%	4.2%	3.8%	3.8%	2.1%	1.4%	2.9%
Valid Cases									
	37	71	69	95	106	104	140	138	760
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

------ SUMMARY STATISTICS ------

	SEMESTER VALUE							
	F 87	S 88	F 88	S 89	F 89	S 90	F 90	S 91
High School Admit Average								
Mean	73.30	73.12	73.55	73.89	73.36	73.35	72.79	73.16
Median	70.00	70.00	70.00	71.60	72.40	71.90	70.00	70.00
St. Dev.	6.88	6.20	6.55	6.56	6.16	6.21	5.61	5.56

Due to funding cuts, no Spring 1990 cohort was recuited.
Based on 299 CSTEP Program participants --- Prepared by EVC, 06/92.
Missing data include students entering with the GED.

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TABLE 4-C

REMEDIAL PLACEMENTS OF STUDENTS ENTERING THE CSTEP PROGRAM*

REMEDIAL REQUIREMENTS	N	%
No remedial coursework required	19	6.6
Only remedial writing required	21	7.6
Only remedial writing & math required	31	11.3
Only remedial reading & writing required	57	20.8
Remedial reading, writing & math required	147	53.7
	275	100%

* Data are based on 275 of the 299 CSTEP students tested.

RETENTION

Retention of CSTEP Program Participants

At this time, we are able to report retention statistics for six of the seven cohorts recruited into the CSTEP program. A student is considered retained if he or she is enrolled during a given semester or if he or she has earned a degree from the College while participating in the CSTEP program. Based on the data in Table 5-A, "Persistence and Graduation Rates for Students Recruited to Participate in the CSTEP Program: Fall 1987 -Spring 1991," by the end of the Spring 1991 semester, the Fall 1987 CSTEP cohort, our first cohort, had completed eight semesters here at Queensborough Community College.

At first, the retention data appear to be discouraging. For instance, after eight semesters students from the Fall 1987 cohort were retained at a rate of only twenty-six percent. This rate is approximately half of that obtained by their counterparts in the general population after four semesters (see appendix table A-12).

However, a steady improvement in retention rates is discernable for subsequent semesters. After seven semesters, students in the Spring 1988 cohort were retained at a rate of forty-nine percent. This is nearly double the rate for the Fall 1987 cohort after nearly the same duration of time. And it is also comparable to retention rates in the general population of students after nearly eight semesters. Most encouraging is the evidence that students are persisting at higher rates in the early going. This is demonstrated by the generally high retention figures reported for more recent cohorts after the first two semesters.

Rate of Pursuit

The programmatic credit completion data provided in Table 5-B, "Total Credits Successfully Completed By CSTEP Students Toward 1ST QCC Degree," suggest that those students who are retained are progressing through their programs at a steady rate. The categories for credits completed correspond to the student rank data reported earlier and the same conclusion emerges. The proportion of students in the lower ranks of the program diminishes steadily while the proportions of students in the upper levels continue to grow. The measures of central tendency tell the same story. After four semesters, the average number of credits completed toward the degree had grown to nearly 35 from a mean of only 7.28 completed in the Fall 1987 semester.

Some insight into the retention rates reported above can also be gleaned from these rate of pursuit statistics. The ratio of credits successfully completed toward the degree to those attempted is reported in Table 5-C, "Degree Credits Successfully Completed As A Percent Of Total Credits Attempted By CSTEP Students By Program Semester." It is apparent from these data that most students are completing registered credits at acceptable rates. Since the Fall 1988 semester, the vast majority (nearly two-thirds) of students registered during a CSTEP program semester successfully completed eighty percent or more of the credits they had attempted at Queensborough. This proportion had improved steadily between Fall of 1987 and Fall of 1988. This in turn ensures that students would avoid the pitfalls of being academically dismissed or dropping out.

TABLE 5-A

PERSISTENCE AND GRADUATION RATES FOR STUDENTS RECRUITED TO PARTICIPATE IN THE CSTEP PROGRAM: FALL 1987 - SPRING 1991

(N=299 CSTEP PROGRAM PARTICIPANTS)

	SEMESTER	MUMBER OF STUDENTS ENROLLED	CUMULATIVE NUMBER OF STUDENTS GRADUATED	% STUDENTS GRADUATED OR RETAINE
FALL 1987 COHORT				
	Fall 1987	38	0	-
	Spring 1988	34	0	89%
	Fall 1988	12	0	32%
	Spring 1989	9	1	26%
	Fall 1989	9	1	26%
	Spring 1990	8	2	26%
	Fall 1990	6	3	21%
	Spring 1991	7	3	26%
SPRING 1988 COHORT				
	Spring 1988	37	4	-
	Fall 1988	19	4	56%
	Spring 1989	14	8	44%
	Fall 1989	9	10	41%
	Spring 1990	8	13	44%
	Fall 1990	6	15	46%
	Spring 1991	5	16	49%
FALL 1988 COHORT				
	Fall 1988	39	2	-
	Spring 1989	30	6	78%
	Fall 1989	25	6	76%
	Spring 1990	21	10	66%
	Fall 1990	16	14	63%
	Spring 1991	15	17	71%
SPRING 1989 COHORT				
	Spring 1989	38	4	-
	Fall 1989	31	5	83%
	Spring 1990	26	11	74%
	Fall 1990	16	17	64%
	Spring 1991	10	18	64%
FALL 1989 COHORT				
	Fall 1989	35	2	-
	Spring 1990	35	4	100%
	Fall 1990	24	5	76%
	Spring 1991	19	6	65%

TABLE 5-A

PERSISTENCE AND GRADUATION RATES FOR STUDENTS RECRUITED TO PARTICIPATE IN THE CSTEP PROGRAM: FALL 1987 - SPRING 1991

(N=299 CSTEP PROGRAM PARTICIPANTS)

	SEMESTER	NUMBER OF STUDENTS ENROLLED	CUMULATIVE NUMBER OF STUDENTS GRADUATED	% STUDENTS GRADUATED OR RETAINED
FALL 1990 COHORT				
	Fall 1990	64	2	-
	Spring 1991	56	3	88%
SPRING 1991 COHORT				
	Spring 1991	34	-	-
TOTAL		146	63	70%

Based on 818 records generated from 299 CSTEP students.
Due to funding cuts, there was no cohort recruited for Spring 1990.
Prepared by EVC, 06/92.

- TABLE 5-B -

Total Credits Successfully Completed By CSTEP Students By Program Semester
(Credits Completed Toward 1st Degree)

	SEMESTER VALUE								Program Total
	F 87	S 88	F 88	S 89	F 89	S 90	F 90	S 91	
Credits Passed Toward 1st Degree									
None	9	8	3	2	3	1	1	2	29
	23.7%	10.8%	4.2%	1.9%	2.6%	.9%	.7%	1.4%	3.6%
1.0 - 13.5	22	22	17	21	28	17	31	25	183
	57.9%	29.7%	23.6%	20.4%	24.3%	15.2%	21.2%	17.4%	22.8%
13.51 - 27.5	7	25	16	23	22	19	15	22	149
	18.4%	33.8%	22.2%	22.3%	19.1%	17.0%	10.3%	15.3%	18.5%
27.51 - 41.5		5	13	18	22	23	30	24	135
		6.8%	18.1%	17.5%	19.1%	20.5%	20.5%	16.7%	16.8%
41.51 & up		14	23	39	40	52	69	71	308
		18.9%	31.9%	37.9%	34.8%	46.4%	47.3%	49.3%	38.3%
Valid Cases	38	74	72	103	115	112	146	144	804
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

------ SUMMARY STATISTICS ------

	SEMESTER VALUE							
	F 87	S 88	F 88	S 89	F 89	S 90	F 90	S 91
Credits Passed Toward 1st Degree								
Mean	7.28	21.26	30.83	34.73	33.02	40.34	39.73	40.04
Median	5.00	16.00	28.50	30.00	30.00	38.00	41.00	41.00
St. Dev.	7.84	19.11	22.06	21.65	22.30	23.11	23.94	24.15

Based on 818 records generated from 299 CSTEP Students.
Prepared by EVC, 06/92.

- TABLE 5-C -

Degree Credits Successfully Completed As A Percent Of Total Credits Attempted
(CSTEP Students By Program Semester)

	SEMESTER VALUE								Program Total
	F 87	S 88	F 88	S 89	F 89	S 90	F 90	S 91	
% Passed of Total Credits Attempted									
None Passed	1	6		1	2	1	1	2	14
	3.3%	8.3%		1.0%	1.8%	.9%	.7%	1.4%	1.8%
0 - 9.99		1				1	1	4	7
		1.4%				.9%	.7%	2.8%	.9%
10.00 - 19.99						1			1
						.9%			.1%
20.00 - 29.99		1		1			1	2	5
		1.4%		1.0%			.7%	1.4%	.6%
30.00 - 39.99	1	1			3	2	2	1	10
	3.3%	1.4%			2.6%	1.8%	1.4%	.7%	1.3%
40.00 - 49.99	1	4	1	5	4	5	4	1	25
	3.3%	5.6%	1.4%	4.9%	3.5%	4.5%	2.7%	.7%	3.2%
50.00 - 59.99	4	7	5	4	3	4	9	8	44
	13.3%	9.7%	7.2%	3.9%	2.6%	3.6%	6.2%	5.6%	5.6%
60.00 - 69.99	5	5	3	6	7	5	16	15	62
	16.7%	6.9%	4.3%	5.9%	6.1%	4.5%	11.0%	10.4%	7.9%
70.00 - 79.99		12	14	10	21	23	19	24	123
		16.7%	20.3%	9.8%	18.4%	20.5%	13.0%	16.7%	15.6%
80.00 - 89.99	2	10	17	30	23	29	31	34	176
	6.7%	13.9%	24.6%	29.4%	20.2%	25.9%	21.2%	23.6%	22.3%
90.00 & up	16	25	29	45	51	41	62	53	322
	53.3%	34.7%	42.0%	44.1%	44.7%	36.6%	42.5%	36.8%	40.8%
Valid Cases	30	72	69	102	114	112	146	144	789
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Students with no degree credits attempted are excluded.
Based on 818 records generated from 299 CSTEP Students.
Prepared by EVC, 06/92.

OUTCOMES

For the purpose of this evaluation, outcomes are defined on the basis of academic performance and degrees granted. Academic performance includes grade point averages for students enrolled in the CSTEP program as well as data on academic standing, which encompasses, academic dismissal and probation rates as well as numbers of students on the Dean's list. Degree data are provided on a cohort by cohort basis as well as by program semester.

Academic Performance:

It is worth noting that grade point index overall and within the major vary very little for CSTEP students (Tables 6-A and 6-B). So similar are they that they may be used interchangeably in the discussion which follows.

Grade point index overall, and in the major as well, has steadily improved for students participating in the CSTEP program since its inception in the Fall of 1987. During its first semester, overall GPI for students participating in the CSTEP program was 2.00 as compared to a 1.99 GPI within the major. By the end of the Spring 1989 semester, overall GPI had improved to 2.63 while GPI within the major had increased to 2.59. This improvement of 0.65 grade points represents a net gain of 33% in grade point average. There has been a small erosion in GPI's since then. As of Spring 1991, overall GPI for CSTEP participants was at 2.45 while GPI within the major was 2.41.

It appears too that the program reaped the most rewards for those it was specifically designed to help. An analysis of the mean and median grade point averages suggests that it was the students at the lower end of the grade point continuum who benefited most from participation in the program. At the outset, a considerable difference between the mean and median grade point averages was discernable with the mean consistently lower than the median. However, as the program evolved, we see the distribution of grades gradually becoming more symmetrical suggesting improvement among students at the low end of the GPI continuum.

- TABLE 6-A -

Overal Grade Point Average CSTEP Program Participants

	SEMESTER VALUE								Program Total
	F 87	S 88	F 88	S 89	F 89	S 90	F 90	S 91	
OVERAL GPI									
LT 1.0									
	12	11	3	2	6	6	4	7	51
	31.6%	14.9%	4.2%	2.0%	5.2%	5.4%	2.7%	4.9%	6.4%
1.0 - 1.99									
	6	20	11	10	12	14	17	16	106
	15.8%	27.0%	15.3%	9.8%	10.4%	12.5%	11.6%	11.1%	13.2%
2.0 - 2.99									
	6	27	38	58	64	67	99	98	457
	15.8%	36.5%	52.8%	56.9%	55.7%	59.8%	67.8%	68.1%	56.9%
3.0 - 4.0									
	14	16	20	32	33	25	26	23	189
	36.8%	21.6%	27.8%	31.4%	28.7%	22.3%	17.8%	16.0%	23.5%
Valid Cases									
	33	74	72	102	115	112	146	144	803
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

------ SUMMARY STATISTICS ------

	SEMESTER VALUE							
	F 87	S 88	F 88	S 89	F 89	S 90	F 90	S 91
OVERAL GPI								
Mean	2.00	2.08	2.51	2.63	2.50	2.44	2.49	2.45
Median	2.28	2.19	2.60	2.67	2.51	2.44	2.50	2.51
St. Dev.	1.40	1.10	.83	.67	.80	.75	.64	.66

Based on 818 records generated from 299 CSTEP students.
Prepared by EVC, 06/92.
GPI computation excludes students with zero credits completed for a grade.

- TABLE 6-B -

Grade Point Average Toward 1st Degree Earned By CSTEP Program Participants

	SEMESTER VALUE								Program Total
	F 87	S 88	F 88	S 89	F 89	S 90	F 90	S 91	
GPI TOWARD 1ST DEGREE									
LT 1.0									
	12	14	5	2	8	7	4	9	61
	31.6%	18.9%	6.9%	2.0%	7.0%	6.3%	2.7%	6.3%	7.6%
1.0 - 1.99									
	5	19	10	13	15	15	19	13	109
	13.2%	25.7%	13.9%	12.7%	13.0%	13.4%	13.0%	9.0%	13.6%
2.0 - 2.99									
	7	24	34	58	62	65	95	95	440
	18.4%	32.4%	47.2%	56.9%	53.9%	58.0%	65.1%	66.0%	54.8%
3.0 - 4.0									
	14	17	23	29	30	25	28	27	193
	36.8%	23.0%	31.9%	28.4%	26.1%	22.3%	19.2%	18.8%	24.0%
Valid Cases									
	38	74	72	102	115	112	146	144	803
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

------ SUMMARY STATISTICS ------

	SEMESTER VALUE							
	F 87	S 88	F 88	S 89	F 89	S 90	F 90	S 91
GPI TOWARD 1ST DEGREE								
Mean	1.99	2.05	2.48	2.59	2.46	2.42	2.47	2.41
Median	2.57	2.17	2.57	2.64	2.50	2.42	2.49	2.48
St. Dev.	1.44	1.15	.95	.69	.85	.79	.68	.73

Based on 818 records generated from 299 CSTEP students.
Prepared by EVC, 06/92.
GPI computation excludes students with zero credits completed for a grade.

Academic Standing

It is clear from Table 6-C, "Academic Standing of CSTEP Program Participants," that CSTEP students are performing at acceptable levels academically. The proportion of CSTEP students on the Dean's List or in good academic standing increased from a low of 69.3% in Spring of 1988 to a high of 92.4% in the Spring of 1989. Since the Fall of 1990, the proportion in good standing or on the Dean's list has continue to exceed ninety percent. It is also worth noting that the proportion of CSTEP students placed on academic probation has steadily declined from a high of 24% in the Spring of 1989 to 6.7% in the Spring of 1991. The same is true with regard to numbers of students academically dismissed. This rate has declined to 2% of all CSTEP program participants as of the Spring 1991 Semester. It had been 6.7% in the Spring of 1988.

Undeniably, the programs poorest performance in this area came in the Spring 1988 semester, when nearly one-quarter of all CSTEP students were placed on academic probation. The poor performance of this cohort is attributable to a variety of factors, not the least of which is a less selective selection criteria used when faced with recruitment problems. Another contributing factor was no doubt our own lack of experience with the program during the initial semester. However, as the trend data indicate, the program got on track in short order and CSTEP participants fared quite well academically in the long run.

- TABLE 6-C -
Academic Standing of CSTEP Program Participants

	SEMESTER VALUE								Cohorts Total
	F 87	S 88	F 88	S 89	F 89	S 90	F 90	S 91	
Academic Standing									
No Special Code	31	42	56	85	87	81	125	130	637
	81.6%	56.0%	77.8%	81.0%	75.7%	70.4%	83.9%	87.2%	77.9%
On Dean's List	2	10	6	12	12	12	11	6	71
	5.3%	13.3%	8.3%	11.4%	10.4%	10.4%	7.4%	4.0%	8.7%
Academically Dismissed		5		2		6		3	16
		6.7%		1.9%		5.2%		2.0%	2.0%
On Probation	5	18	10	6	16	16	13	10	94
	13.2%	24.0%	13.9%	5.7%	13.9%	13.9%	8.7%	6.7%	11.5%
Valid Cases	38	75	72	105	115	115	149	149	818
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Based on 818 records generated from 299 CSTEP students.
Prepared by EVC, 06/92.

Degrees Granted:

As of Spring, 1991, based on the data in Tables 6-D through 6-F, "Degrees Granted to CSTEP Students by ...," a total of sixty-three degrees have been granted to students participating in the CSTEP program since Fall of 1987. Of these, 9 were A.S. degrees while fifty-four were the A.A.S. degree. Overall, roughly twenty-one percent of the 299 students recruited to the CSTEP program have received their degrees. On a cohort by cohort basis, degrees have been earned as follows:

Cohort	Number of Students In Cohort	Percent of Students In Cohort Earning Degrees
Fall 1987	38	7.8%
Spring 1988	41	39.0%
Fall 1988	41	41.4%
Spring 1989	42	42.8%
Fall 1989	37	16.2%
Fall 1990	66	4.5%
Spring 1991	34	--
	299	21.0%

The overall rate of degree completion is considerably higher when only those cohorts in attendance at least two years are included in the calculation. Specifically, a total of 162 students entered the CSTEP program between Fall 1987 and Spring 1989 (four semesters prior to Spring 1991). A total of 54 degrees were awarded among these students for a graduation rate of 33.3%. With time then, and allowing for the improvements in retention rates documented earlier, it is reasonable to expect that completion rates for CSTEP participants will at least match the 33% reported above, and in all probability, surpass it.

- TABLE 6-D -

Degrees Earned By CSTEP Students By Program, Cohort and Semester

	Curriculum of First QCC Degree											Semester Total
	CT2	DD2	ET2	FA1	LS1	ME2	ML2	MT2	NS2	PE1	PL2	
COHORT												
F '87 Cohort												
SEMESTER VALUE												
S 89											1	1
S 90	1											1
F 90			1									1
Cohort Total	1		1								1	3
S '88 Cohort												
SEMESTER VALUE												
S 88	1	1			1			1				4
S 89		1	1		1			1				4
F 89			1		1							2
S 90		1	1		1							3
F 90			2									2
S 91								1				1
Cohort Total	1	3	5		4			3				16
F '88 Cohort												
SEMESTER VALUE												
F 88			2									2
S 89	1	1	2									4
S 90	2					1	1					4
F 90	3			1								4
S 91	3											3
Cohort Total	9	1	4	1		1	1					17
S '89 Cohort												
SEMESTER VALUE												
S 89			2						2			4
F 89			1									1
S 90	1		1			1			3			6
F 90	1		2		1				2			6
S 91	1											1
Cohort Total	3		6		1	1			7			18

Based on 818 records generated from 299 CSTEP students.
Prepared by EVC, 06/92.

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(continued)

- TABLE 6-D -

Degrees Earned By CSTEP Students By Program, Cohort and Semester

	Curriculum of First QCC Degree											Semester Total
	CT2	DD2	ET2	FA1	LS1	ME2	ML2	MT2	MS2	PE1	PL2	
F '89 Cohort												
SEMESTER VALUE												
F 89	1									1		2
S 90	1								1			2
F 90									1			1
S 91	1											1
Cohort Total	3								2	1		6
F '90 Cohort												
SEMESTER VALUE												
F 90					1				1			2
S 91					1							1
Cohort Total					2				1			3
X												
GRAND TOTAL	17.00	4.00	16.00	1.00	7.00	2.00	1.00	3.00	10.00	1.00	1.00	63.00

Based on 818 records generated from 299 CSTEP students.
Prepared by EVC, 06/92.

- TABLE 6-E -

Degrees Earned By CSTEP Students By Degree Type, Cohort and Semester

	Type of Associates Degree Earned At QCC		Semester Total
	AAS Degree	AS Degree	
COHORT			
F '87 Cohort			
SEMESTER VALUE			
S 89	1		1
S 90	1		1
F 90	1		1
Cohort Total	3		3
S '88 Cohort			
SEMESTER VALUE			
S 88	3	1	4
S 89	3	1	4
F 89	1	1	2
S 90	2	1	3
F 90	2		2
S 91	1		1
Cohort Total	12	4	16
F '88 Cohort			
SEMESTER VALUE			
F 88	2		2
S 89	4		4
S 90	4		4
F 90	3	1	4
S 91	3		3
Cohort Total	16	1	17
S '89 Cohort			
SEMESTER VALUE			
S 89	4		4
F 89	1		1
S 90	6		6
F 90	5	1	6
S 91	1		1
Cohort Total	17	1	18

Based on 818 records generated from 299 CSTEP students.
Prepared by EVC, 06/92.

(continued)

- TABLE 6-E -

Degrees Earned By CSTEP Students By Degree Type, Cohort and Semester

	Type of Associates Degree Earned At QCC		Semester Total
	AAS Degree	AS Degree	
F '89 Cohort			
SEMESTER VALUE			
F 89	1	1	2
S 90	2		2
F 90	1		1
S 91	1		1
Cohort Total	5	1	6
F '90 Cohort			
SEMESTER VALUE			
F 90	1	1	2
S 91		1	1
Cohort Total	1	2	3
X			
GRAND TOTAL	54.00	9.00	63.00

Based on 818 records generated from 299 CSTEP students.
Prepared by EVC, 06/92.

- TABLE 6-F -

Degrees Earned By CSTEP Students

Curriculum and Type of 1st Degree Earned By CSTEP Program Semester

	SEMESTER VALUE							Total
	S 88	F 88	S 89	F 89	S 90	F 90	S 91	
Curriculum of First QCC Degree								
Comp. Eng. Tech.	1		1	1	5	4	5	17
Design Drafting	1		2		1			4
Elec. Tech		2	5	2	2	5		16
Fine & Perf. Arts						1		1
Lib. Arts. & Sci.	1		1	1	1	2	1	7
Music Elec. Tech.					2			2
Medical Lab. Tech.					1			1
Mechanical Tech.	1		1				1	3
Nursing Sci.			2		4	4		10
Pre-Engineering				1				1
Laser & Fiber Optics			1					1
Type of Associates Degree Earned At QCC								
AAS Degree	3	2	12	3	15	13	6	54
AS Degree	1		1	2	1	3	1	9
Total	4	2	13	5	16	16	7	63

Based on 818 records generated from 299 CSTEP students.
Prepared by EVC, 06/92.

APPENDIX

Overview of the College

Queensborough Community College, a unit of the City University of New York (CUNY), was established in 1958 and held its first classes in September 1960. The College is located on a 34-acre campus in the northeast section of the Borough of Queens in the residential community of Bayside. Its campus contains ten major structures, nine ancillary buildings, outdoor athletic facilities, parking fields for 1,112 vehicles, and landscaped grounds.

In the Fall Semester of 1990, 12,310 students were enrolled at the College in credit bearing courses. Of these, 4,771 (38.8 percent) were full-time and 7,539 (61.2 percent) were part-time students. Approximately 88.5 percent of Queensborough's students reside in the Borough of Queens, and they reflect the ethnic diversity that characterizes the Borough, among whose two million residents are a growing number of immigrants from the Americas and Asia.

Queensborough admits students under the "Open Admissions" policy of the City University. The College offers degree programs leading to the Associate in Arts, the Associate in Science, and the Associate in Applied Science in four broad curricular areas: Liberal Arts and Sciences, Business, the Engineering Technologies, and the Health Sciences. Since 1979, Queensborough has also offered certificate programs in selected areas. Through August of 1990, Queensborough has graduated a total of 29,658 students.

The College serves as an educational, cultural, and recreational center for the Queens community through noncredit continuing education programs, the Professional Performing Arts Series, the College Art Gallery, The Holocaust Resource Center, dance, music, and theater presentations, and other special events.

Organization of the College

As a unit of the City University, the College is subject to its bylaws, administered on a University-wide basis by the Chancellor and the Central Office staff. As the Chief Academic and Administrative Officer of the College, the President implements the bylaws and policies of the University, maintains contact with the Chancellor, and sits as a member of the University's Council of Presidents. Other College administrators also meet regularly with appropriate members of the Central Office staff, and with their counterparts in the other units of the University.

Locally, the College functions under its Governance Plan, adopted by the College community and ratified by the CUNY Board of Trustees in 1976. Under this plan, the Academic Senate, which is presided over by the President of the College, serves as the legislative body for Queensborough's academic community in determining educational objectives, curriculum, and other matters pertaining to the implementation of the College's mission. Personnel matters, as they affect members of the instructional staff, and budget oversight are the responsibility of the Personnel and Budget Committee structure. Each of the College's nineteen departments (seventeen instructional departments plus the Library and the Department of Student Services) has an elected departmental Personnel and Budget committee. The recommendations of these committees (by majority vote) are forwarded to the College Personnel and Budget Committee, which is composed of all departmental chairpersons and the Dean of Academic Affairs, and chaired by the President. This committee meets throughout the academic year and makes recommendations to the President on appointments, reappointments, tenure, promotion, and other personnel and budget matters. The chairpersons of the seventeen instructional departments are elected to their positions by their respective department faculties - election is to a three-year term.

Mission of the College

The mission of Queensborough Community College reflects its role as a public institution in the State of New York and as a unit of the City University of New York. The individual character imparted to its mission has grown out of the College's central regard for maintaining excellence in its programs while helping its students develop their abilities and fulfill their aspirations. A revised mission statement was adopted by the College's Academic Senate in January of 1990 and appears in the Catalog and other official publications as follows:

> The mission of Queensborough Community College is to provide post-secondary educational programs pursuant to the policies of the City University of New York. The College offers Associate degree and Certificate programs that prepare its students for transfer to four-year institutions and for entry into the job market. All degree programs are based on a strong foundation in the liberal arts and sciences.
>
> The College provides a network of developmental education and student support services designed to enable students to succeed in their college studies. Students are provided opportunities for challenge, stimulation and growth through advanced courses, special projects and appropriate academic advisement and personal and career counseling. The College strives to provide its students with the best preparation for their future lives and careers.
>
> The College functions as a community resource by serving the educational, professional and cultural needs of the general community. It offers a broad base of community-oriented activities including continuing education, on- and off-campus learning centers and cultural and recreational events.
>
> The College engages in an active outreach policy that invites members of the business, labor and industrial community to participate in special programs and activities.

The College promotes program evaluation, modification and innovation of services and resources on an on-going basis. The College provides an environment conducive to excellence in teaching and in student achievement by encouraging the scholarly accomplishment and professional advancement of the members of the institution.

To serve its students and its community in accordance with the mandate of its Mission, the College is continually re-allocating its energies and its resources. The Mission remains sufficiently broad to encompass new initiatives. Furthermore, notwithstanding possible modifications in the delivery of educational services, such as the development of additional certificate programs and expanded cooperative educational efforts, Queensborough will remain a comprehensive community college offering a strong foundation in general education in all of its degree programs.

The Student Body

Queensborough's students remain the central focus of all institutional efforts. An analysis of the Fall 1990 student cohort indicates that of the 12,310 students who registered:

- 38.8 percent were full-time students*,
- 30.6 percent attended in the evening or on weekends,
- 54.7 percent were female, and
- 73 percent were pursuing degree or certificate programs.

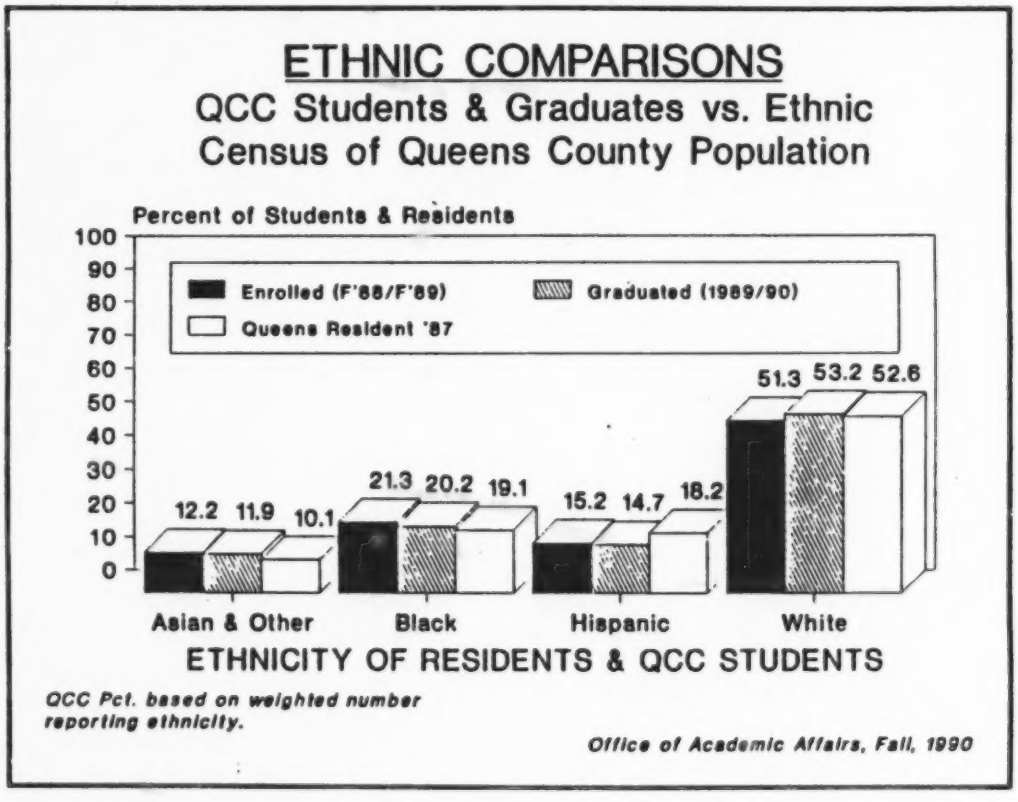
A distribution of student enrollment for the Fall 1990 semester by curriculum is illustrated in Table I. It is noted that of the students registered in degree programs approximately 36 percent of the students are enrolled in Business-related programs, 14 percent are in Technology related curricula, 13 percent are in Nursing or pre-nursing, and 32 percent are following Liberal Arts curricula. Three percent of the students are registered in certificate programs.

*Full-time students are those registered for at least 12 credits or the equivalent number of credits and non-credit remedial courses.

A comparison of the current student body with earlier populations reveals a number of trends. For example:

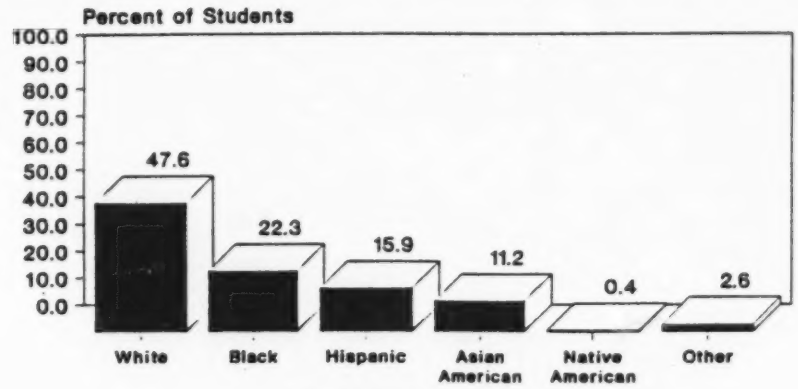
- The large majority, 88.5 percent, continue to come from Queens county.
- The large majority continue to be first-generation college students.
- A majority require basic skills remediation and extensive support programs to help prepare them for college-level work and the fulfillment of their academic objectives.
- More students are enrolled part-time: 61.2 percent in Fall 1990 compared to 46.6 percent in Fall 1980.
- The student body is older. The number of those age 24 years or younger dropped from 82 percent in 1980 to 63.3 percent in Fall 1990 (reflecting a persistent national trend).
- More work while going to school: 70 percent of the day students in 1987 held jobs (including 26 percent who worked full-time), compared to 54 percent in 1980 (including 11 percent full-time).
- The student body includes an increased number of disabled students, rising from 25 in 1975-1976 to 418 in 1989-1990, constituting the largest such group in the City University. Of this group more than fifty were enrolled in the College's Homebound Programs, established in 1973 to provide postsecondary education to individuals unable to leave their homes or hospitals because of a physical disability. (The program is the only comprehensive college-based project of its kind at a public institution in the United States.)
- The ethnic makeup changed significantly, reflecting new ethnic patterns in the population of Queens. Between Fall 1970 and Fall 1990, the percentage of students who identified themselves as white declined from 83.9 percent to 47.6 percent. During the same period, the percentages of students who described themselves as black rose from 11.5 to 22.3 percent, as Asian, from 1.2 to 11.2 percent, as Hispanic, from 1.5 to 15.9 percent.

An ethnic comparison of the College's recent student populations, the ethnicity of its recent graduates and the ethnic census of Queens County is illustrated below. The College's success at providing equal opportunity for all students is evident from the parity among the ethnic composition of the Queens County population, the Queensborough student population, and the cohort of students receiving degrees from Queensborough.



QCC STUDENT PROFILE, FALL 1990

Ethnic/Racial Composition

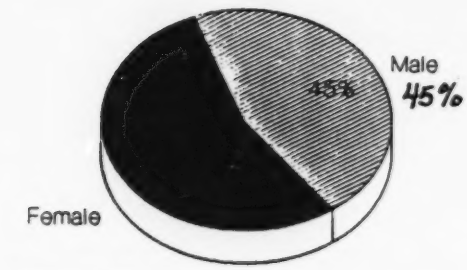


Number of Students = 12,310

SOURCE: Office of Institutional Research Fall, 1990

QCC STUDENT PROFILE, FALL 1990

Gender

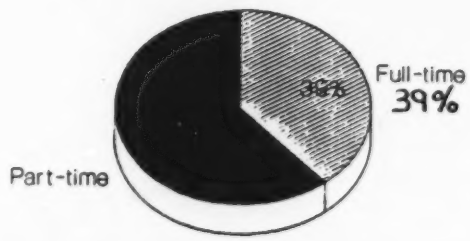


Number of Students = 12,310

SOURCE: Office of Institutional Research Fall, 1990

QCC STUDENT PROFILE, FALL 1990

Student Status

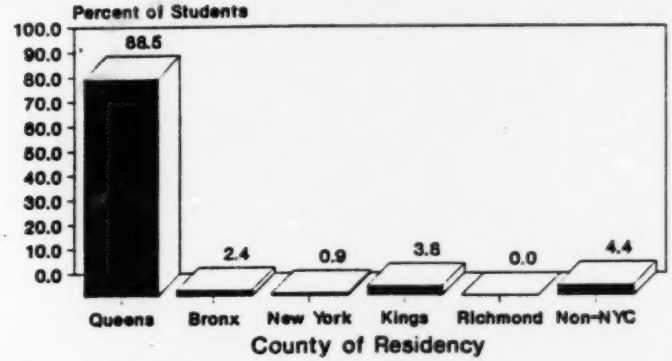


Number of Students = 12,310

SOURCE: Office of Institutional Research Fall, 1990

QCC STUDENT PROFILE, FALL 1990

Residency By County

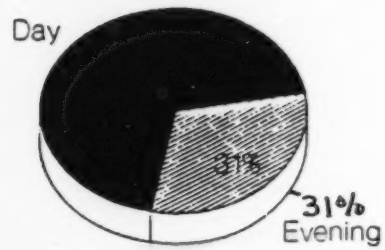


Number of Students • 12,310

SOURCE: Office of Institutional Research Fall, 990

QCC STUDENT PROFILE, FALL 1990

Session Status



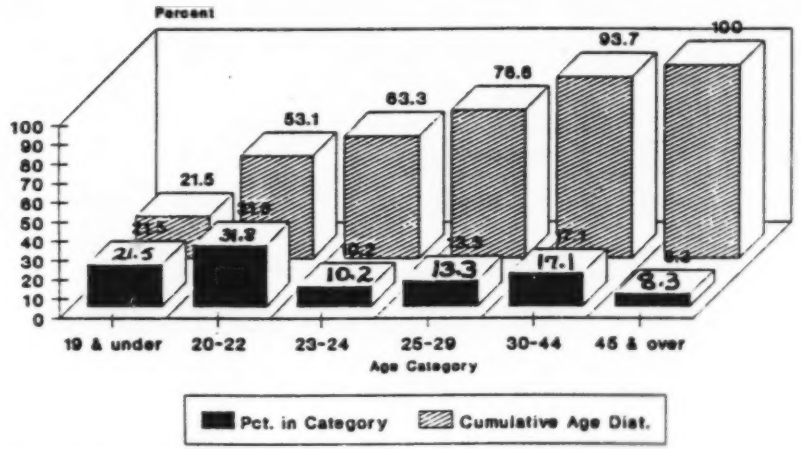
Number of Students • 12,310

SOURCE: Office of Institutional Research Fall, 1990

QCC STUDENT PROFILE, FALL 1990

Age Composition

Percents & Cumulative Percents

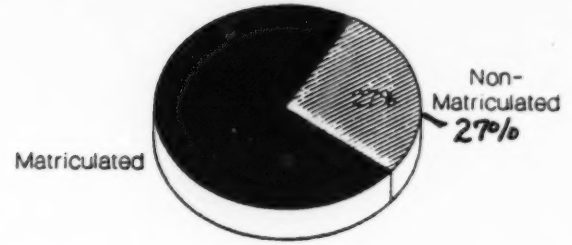


N of Students = 12,310

Source: Institutional Research, Fall 1990

QCC STUDENT PROFILE, FALL 1990

Enrollment Status



Number of Students = 12,310

SOURCE: Office of Institutional Research, Fall 1990

QCC STUDENT PROFILE, FALL 1990

Session Status

Number of Students = 12,310

SOURCE: Office of Institutional Research, Fall 1990

1. Provide the following data for the cohort of students admitted for full- and part-time study in associate degree programs for the fall term for four years ago. Include students admitted as both first-time students and transfers. Provide separate data for the main campus and each branch campus.

PERSISTENCE AND GRADUATION RATES
AS OF SPRING 1990
COHORT ENTERING FALL 1986
QUEENSBOROUGH COMMUNITY COLLEGE

Associate Degree Programs

Regularly Admitted Students

	Full-Time		Part-Time		Total	
	N	Pct.	N	Pct.	N	Pct.
Number	1758		390		2148	
Pct. Graduated	323	18.4	22	5.6	345	16.1
Percent Transfer Before Graduation	*	*	*	*	*248	*11.5
Pct. Currently Enrolled	269	15.3	69	17.7	338	15.7
Pct. Graduated or Retained	592	33.7	91	23.3	683	31.8

Other Admitted Students (GED)

	Full-Time		Part-Time		Total	
	N	Pct.	N	Pct.	N	Pct.
Number	234		114		348	
Pct. Graduated	24	10.3	5	4.4	29	8.3
Percent Transfer Before Graduation	*	*	*	*	*18	*5.2
Pct. Currently Enrolled	34	14.5	18	15.8	52	14.9
Pct. Graduated or Retained	58	24.8	23	20.2	81	23.3

2. Provide the following data for the cohort of students admitted for full- and part-time study in credit-bearing certificate programs for the fall term four years ago. Include students admitted as both first-time students and transfers. Provide separate data for the main campus and each branch campus.

Certificate Programs

Regularly Admitted Students

	Full-Time		Part-Time		Total	
	N	Pct.	N	Pct.	N	Pct.
Number	29		20		49	
Pct. Graduated	12	41.4	4	20.0	16	32.7
Percent Transfer Before Graduation	*	*	*	*	*6	*12.2
Pct. Currently Enrolled	3	10.3	5	25.0	8	16.3
Pct. Graduated or Retained	15	51.7	9	45.0	24	50.0

Other Admitted Students (GED)

	Full-Time		Part-Time		Total	
	N	Pct.	N.	Pct.	N	Pct.
Number	7		9		16	
Pct. Graduated	0	0.0	0	0.0	0	0.0
Percent Transfer Before Graduation	*	*	*	*	*0	*0
Pct. Currently Enrolled	0	0.0	0	0.0	0	0.0
Pct. Graduated or Retained	0	0.0	0	0.0	0	0.0

*Information available only for transfers within CUNY. Full-time and part-time cannot be distinguished.

FIRST TIME FRESHMEN STUDENTS RETURNING FOR THE NEXT SEMESTER FALL 1985 - FALL 1991

YEAR	REGISTERED FRESHMEN	RETURN IN SPRING	% RETURN
Fall 1985	2707	2142	79.13
Fall 1986	2346	1830	78.01
Fall 1987	2473	1958	79.18
Fall 1988	2345	1818	77.53
Fall 1989	2267	1799	79.36
Fall 1990	2241	1879	83.85
Fall 1991	2326	1976	84.95

YEAR	REGISTERED FRESHMEN	RETURN IN FALL	% RETURN
Spring 1985	943	636	67.44
Spring 1986	822	571	69.46
Spring 1987	736	507	68.89
Spring 1988	759	514	67.72
Spring 1989	756	483	63.89
Spring 1990	934	602	64.45
Spring 1991	1078	683	63.36

ENROLLMENT BY CURRICULUM

DEGREE PROGRAMS	Fall 1990
Business Accounting	608
Business Management	713
Business Secretarial/Office Technology	334
Business Transfer	910
Comp. Prog. + Info. Systems	469
Computer Technology	299
Design Drafting	155
Environmental Health	32
Electrical Technology	392
Fine and Performing Arts	185
Laser and Fiber Optics	103
Liberal Arts (A.A.)	2,203
Liberal Arts and Sciences (A.S.)	305
Mechanical Technology	151
Medical Laboratory Technology	124
Music Electronic Technology	110
Nursing Science	521
Pre-Nursing	574
Pre-Engineering	210
CERTIFICATE PROGRAMS	
Computer Manufacturing	1
Data Processing	61
Medical Office Assistant	55
Photography	32
Word Processing	82
SUB-TOTAL	8,629
NON-DEGREE STUDENTS	3,556
GRAND TOTAL	12,185

Source: Form A Report Fall 1990

DRAFT

Submitted to Tunde Kashimawo, CSTEP Coordinator and Dean Stephen Beltzer, Dean of Enrollment Management for review prior to distribution.

EVALUATION

OF

THE COLLEGE SCIENCE AND TECHNOLOGY ENTRY PROGRAM

FALL 1987 THROUGH SPRING 1991

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EXECUTIVE SUMMARY

This evaluation report is offered as the follow-up and continuation of the previously published Evaluation of College Science and Technology Entry Program, covering the period Fall 1987 through Spring 1989. The data reported herein are cumulative and the research documents CSTEP program developments for the entire period from Fall 1987 through Spring 1991. As our database has undergone substantial revision since the previous CSTEP evaluation report, some differences in the data reported for the preceding evaluation period may be discernable. None of these changes altered the conclusions drawn from the data as reported earlier. As before, this evaluation report represents our ongoing effort to maintain a computerized information retrieval system that permits longitudinal analysis of data collected about our CSTEP program participants here at Queensborough Community College. Based on that analysis, the following results were obtained:

- As of Spring 1991, a total of 299 students have participated in the CSTEP program.

- The CSTEP program has been very successful in its efforts to recruit minority students. Nearly ninety-five percent of all students participating in the program identified themselves as members of the ethnic minorities most heavily represented in Queens county.

- Substantial gains in participation levels of females in the CSTEP program were made. As of the Fall 1990 semester, for the first time, women comprised the majority of CSTEP program participants. Overall, women now comprise 44% of all students ever served by the CSTEP program.

- The CSTEP program appeals to all segments of the student population. The vast majority of new students recruited to the program are students just beginning their college careers, who require the guidance and academic support services offered. There is also a substantial number of students close to finishing who are drawn to the program by its promise to familiarize them with career opportunities as well as the assistance promised in the areas of professional development and resume preparation.

- The Nursing curriculum accounts for one third of all students who have participated in the CSTEP program.

- Students participating in the program continue to be poorly prepared for college level work. Their overall

high school admit average was 73.27. And nearly all, 94.4% required remedial course work in at least one of the basic academic skill areas.

- Although retention rates for the Fall '87 cohort were poor, they have improved steadily since then with 48% of the students in the Spring '88 cohort being retained as of Spring 1991. Especially encouraging are the generally high retention figures reported for more recent cohorts after the first year of attendance.

- Those students who are retained in the CSTEP program are also demonstrating steady progress toward their degrees.

- Outcomes data for CSTEP students are generally favorable. Overall grade point average and GPA in the major have both improved steadily for CSTEP students since the program's inception. By the end of the spring 1989 semester, overall GPI had improved to 2.63, which represents an improvement of 0.65 grade points and a net gain of 33% in overall GPI. There has been a small erosion in grade point average since then and future research will monitor this recent downward trend closely.

- Especially gratifying is that the program reaped the most rewards for those it was specifically designed to help. Based on an analysis of the mean and median grade point averages, it is clear that students at the lower end of the GPA continuum realized the greatest gains in their grade point averages.

- By and large, CSTEP students are performing at acceptable levels academically. The proportion of students in good academic standing, or on the Dean's list has exceeded 90% since the Spring 1989 semester.

- As of Spring 1991, a total of sixty-three degrees were earned by CSTEP students which represents an overall graduation rate of 21% for the 299 students that have participated in the CSTEP program since its inception. The graduation rate is much higher (33.3%) when calculated for students from cohorts in attendance for at least four semesters (2 years). Considering the documented gains made recently in retention rates, it is reasonable to expect that completion rates for CSTEP participants will at least match the 33% rate and, in all probability surpass it in the near future.

INTRODUCTION

The College Science and Technology Entry Program (CSTEP) at Queensborough Community College began in the Fall semester of 1987. The overall purpose of the program is to motivate students to pursue careers in science and technology and to provide them with academic support services, as well as career information, which will help them improve their academic achievement, and clarify their goals and thus reduce the high level of attrition of such students enrolled at the college. The program is specifically designed to recruit and benefit minority and disadvantaged students enrolled in the science, technology and allied health programs.

Key Goals:

The overall goals of the program are:

I. To provide opportunities for disadvantaged and minority students to learn about careers in the technologies and to foster their enrollment in technological programs at Queensborough Community College.

II. To provide an opportunity for minority and disadvantaged students enrolled in the technologies at The College to improve their academic performance, thus reducing the high level of attrition for these students.

Indicators of Success:

Success in these stated goals will be evaluated using the following data:

a. Demographic and institutional characteristics of recruited students;
b. Preparedness of recruited students as measured by remedial placements and high school average;
c. Course and credit completion rates;
d. Retention rates;
e. Academic performance as measured by academic standing and grade point average;
f. Numbers of degrees granted.

METHODOLOGY

As well as the specific program goals for students stated above, there were a number of long range goals dealing with the administration of the program and the manner in which we monitor the progress of students participating in the CSTEP program. These are:

1. To develop a computerized information retrieval system utilizing the data collected to improve student retention, pinpoint problem areas, identify potential solutions and monitor academic progress;

2. To monitor student progress longitudinally over a period of five years in order to ascertain the effectiveness of the provided support services.

The CSTEP program achieved the four year milestone with the completion of the Spring 1991 semester. This evaluation therefore represents the culmination of our efforts to date in these two areas.

Subjects

At this time, a total of 299 students were recruited to participate in the CSTEP program here at QCC. They were recruited in seven cohorts which correspond to seven of the eight program semesters the CSTEP program has been operating here at Queensborough Community College. Due to funding constraints, no new students were recruited to participate in the program for the Spring 1990 semester.

Cohort	# of Students
Fall '87	38
Spring '88	41
Fall '88	41
Spring '89	42
Fall '89	37
Spring '90	--
Fall '90	66
Spring '91	34
	299

For purposes of analysis, the data collected are